Evaluation of a project to reduce the risk factors associated with high complications and mortality from traditional male circumcision in the Umlamli community, Eastern Cape: outcome mapping

Dr Obi Nwanze: Research assignment submitted in partial fulfillment of the degree MMed in Family Medicine

Supervisor: Prof Bob Mash

"Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

Signature: .....……..... Date: ..……..."

Evaluation of a project to reduce the risk factors associated with high complications and mortality from traditional male circumcision in the Umlamli community, Eastern Cape: outcome mapping

ABSTRACT

Background

Traditional circumcision is one of the oldest and most common operations performed worldwide, and are practiced as a religious fulfillment, or as a rite of passage from boyhood to manhood, in cultural settings such as my community at Umlamli in the Eastern Cape (South Africa) – where this study was carried out. The aim and objective of this research project was to design, implement and evaluate a project to improve the safety of traditional male circumcision practices in the Umlamli community, with the ultimate goal of reducing the high number of complications and mortalities.

Methods

An outcome mapping study design was used as this is empowering and participatory. Outcome mapping has also been successfully applied in other studies (Eaerl et al., 2001) carried out within complex social systems, where a development project has attempted to accurately describe a contribution to a desired impact, without having to prove a direct cause-and-effect link between the local interventions and the ultimate impact. The goal is to effect changes by remodeling behaviours of the boundary partners (in this study eight boundary partners were identified). The study design involved three main steps: intentional design, outcome and performance monitoring and evaluation. The first four months of the study (February–May) involved initial mapping and systematic planning of the project design as well as associated monitoring and evaluation by a team of 15 members, known as the ‘safe circumcision group’, formed from the community, with the principal investigator as the head. The team implemented, monitored and evaluated all activities of the project during and after the June 2010 circumcision ritual. A total of 92 initiates were enrolled in the June 2010 circumcision ritual. All were physically examined at the local district hospital (Umlamli) prior to the ritual.

Results

The Umlamli District Hospital had two admissions due to haemorrhage and mild penile sepsis, but no deaths. These results were compared with past statistics from the community. Resulting from this study, the greatest changes emerged amongst the traditional

surgeons and attendants, parents, initiates, community leaders and the police. The project was less successful in achieving changes in the Department of Health and least successful amongst the emergency medical services. Overall, the project was considered a success. The key aspects of this project that were considered to be responsible for its success were the following:

- The use of outcome mapping as an explicit approach to project design and monitoring
- The participatory nature of the process, which involved community leaders, traditional surgeons and health workers
- Eliciting community support for a lower age limit of initiates and closure of illegal circumcision schools
- The establishment of only two large, approved and accredited circumcision schools to allow for easier assessment and monitoring of the events at the schools
- Organisation of training workshops on the correct surgical procedure and infection control practices, which led to an improvement in surgical skills and prompt recognition of complications
- Designation of an isolated treatment room for initiates with complications, which had a positive effect on the acceptance of treatment at the district hospital
- Assistance with materials vital for circumcision, like surgical blades, gloves, bandages and other materials used for circumcision, from the district hospital
- Application of the safe Circumcision Act of 2001, which requires the pre-circumcision examination of initiates and the issue of certificates of fitness to qualify candidates for the ritual, in order to reduce complications, as exposure to a harsh environment is part of the mental toughness the initiates face during the ritual.

Conclusions

Despite the increase in the number of hospital admissions and deaths from circumcision, the demand for it appears to be ongoing, and even increasing. In future, in order to decrease complications and eventually totally eradicate mortality associated with traditional male circumcision it is important that there is a strong collaboration between the Department of Health and the communities involved.

INTRODUCTION AND LITERATURE REVIEW

Traditional circumcision is one of the oldest and most common operations performed worldwide, and practiced as a religious fulfillment, for example amongst Jews and Moslems, or as a rite of passage from boyhood to manhood in cultural settings such as my community at Umlamli in the Eastern Cape (South Africa). Umlamli is a rural community comprising 12 villages and a population of about 140 000 people, who are mostly unemployed and poorly educated. During the last five years health workers and community members have noticed an increase in the number of hospital admissions and deaths from circumcision. Nonetheless, the demand for circumcision appears to be ongoing and even increasing, which leaves us with no choice other than to devise a safer procedure to reduce the complications and associated mortality. Therefore, an intervention to improve the situation whilst preserving the cultural rites of the people was seen as a matter of urgency.

The principal researcher was approached by the community leaders to assist in the situation, and to lead a team (the so-called 'safe circumcision group') that would focus on reducing the unacceptable complications in the community. He was the chief medical officer and had lived within the hospital complex in the community and worked at the local hospital for four years.

General overview of circumcision

Circumcision is one of the oldest surgical procedures, and about 25% of the total world male population is circumcised.[1] Studies have shown that "circumcision done in non-clinical settings can have significant risks of serious adverse events, including death."[2,3] In other African settings, such as in Tanzania, the circumcision rate is highest amongst those with higher education, and amongst Muslims.

The reasons for circumcision are mostly health related because it is thought to enhance penile hygiene, reduce the incidence of sexually transmitted infections (STI'S) and improve the cure rates of STI.[4] Circumcision has been claimed to prevent masturbation, STI and penile cancer.[5] In women, circumcision has been said to prevent cervical cancer. It has also been argued that urinary tract infections in the first year of life are reduced. However none of these claims have been substantiated.[6]

In a recent study carried out in the Eastern Cape (South Africa), 2 262 hospital admissions for circumcision-related complications were assessed. Between the years 2001 and 2006 there were 115 deaths and 208 genital amputations.[7] This led to the promulgation of a law known as the Application of Health Standards in Traditional Circumcision, Act No. 6 of 2001.[8] By law, all traditional surgeons involved in circumcision procedures must be registered with the Eastern Cape Provincial Department of Health, and subjected to ongoing evaluation. However, in my community, this is not adhered to; some of the surgeons are not registered and they operate illegal circumcision schools. Consequently, this has contributed to high mortality rates. Under the Act, the province trains and then registers and certifies the surgeons as qualified traditional surgeons. From our experience in the Umlamli community many parents enroll their children into illegal schools, without first verifying the traditional surgeon's qualification. Parents also sometimes enroll young children, at an age when they are more prone to complications.

The circumcision rate in the Umlamli community is as high as 84% – much higher than the world average of 25–33.3% (but less than the rate in Israel, where virtually all males are circumcised).[9] Overall, the incidence of circumcision related complications and fatalities has remained unchanged between 2001 and 2006 in the Eastern Cape,[10] although the impression in the Umlamli community is that it has increased, as seen from hospital record statistics. Table 1 shows the morbidity and mortality associated with circumcision in the Umlamli community between 2007 and 2009, as derived from hospital records.

The indications for circumcision in the Umlamli community remain largely non-medical and cut across socio-economic and religious differences. This is because the cultural value of integrating the male child into society according to Xhosa norms is utmost – it is seen as a transition from boyhood to manhood.

Table 1. Umlamli community circumcision statistics: Dec 2007–Jun 2009

Year	Month	Number of initiates admitted to hospital	Diagnosis	Amputation/ mutilation	Number of deaths
2007	December	8	Penile sepsis, bleeding and assault	1	3
2008	June	6	Penile bleeding, sepsis and burns	1	2
2008	December	10	Penile sepsis, bleeding and renal failure	2	2
2009	June	5	Penile sepsis, bleeding, pneumonia and assault	2	4
2009	December	3	Penile sepsis, bleeding and assault	0	1

Circumcision in Xhosa communities

Circumcision in the Xhosa culture is seen as a rite of transition from boyhood to manhood and allows the initiates to be integrated into the community as adults. Circumcision confers socially approved adult status, including marriageability and eligibility to other social events in the community. An uncircumcised male of age cannot inherit, and has to be treated as a minor.[10] The ritual is usually carried out twice a year, in June and December, when initiates are enrolled into the circumcision schools. The initiates stay in the school for about 3–4 weeks and observe all the cultural rites, including learning about sexual, individual and community values.[2] The initiation ritual, therefore, is not only about the surgical removal of the foreskin, but also incorporates the teaching of community values and responsibilities expected from the initiates as men.[11]

Overall, a significant stigma is attached to non-completion of the ritual.[2,10] This is particularly why this study is relevant in our context, as complications and mortality tend to be on the increase yet the rate at which the ritual is being performed seldom changes. Therefore, in this context, adopting a non-judgmental and safe approach towards solving this is vital, to preserve the cultural rites of the people, while simultaneously offering the best medical evidence to prevent complications and mortality is considered very important.

Ritual male circumcision is among the most secretive and sacred of rites practiced by the Xhosa in South Africa.[2] The high death rate has attracted much media attention and government regulation, but many of the physical components of the ritual have been little changed over the years, even though the cultural and social meanings have shifted.[12] The social and cultural meanings of circumcision have shifted particularly with respect to attitudes towards sex and the role that the circumcision schools play in the socialisation of the youth.[11] For example, the idea that initiation gives men the unlimited and questionable right of access to sex is being replaced by ideas about sexual responsibility and restraint.[11]

Circumcision and HIV

The issue of circumcision and the risk of HIV have been generating a lot of controversy, but recent studies all report that after circumcision a man's risk of contracting HIV is reduced by 60%, 53% and 51%, in South Africa,[13] Kenya,[14] and Uganda,[15] respectively. Circumcision is thought to remove the potential entry sites for HIV, by removing the inner surface of the human foreskin which contains cells that attract HIV.[16] However, there is also concern that people are being led to believe that circumcision is actually protective, in the sense of conferring full immunity from HIV. This could be seriously counterproductive and could lead to behavioural disinhibition amongst circumcised men and the abandonment of other protective methods.[6]

However, according to the reports from the South African National HIV Survey carried out in 2008 in the Eastern Cape, where circumcision is widely practiced, the HIV prevalence rate is not significantly lower than in KwaZulu-Natal, where most men are not circumcised[6].

Studies carried out in Cameroon highlight the fact that, since traditional healers and circumcisers have a vital role to play in these practices at village level, their collaboration is needed by the government and biomedical communities to engage in health education and prevention efforts to stem the incidence and prevalence of HIV.[17]

Prior to 2003 several reviews[18–22] and even a meta-analysis[21] were published, but diverse conclusions about the relationship between male circumcision and HIV infection were reached. The views were divergent as some showed a strong epidemiological support or association (relationship) between male circumcision and prevention of HIV, especially among high risk groups, e.g., patients with sexually transmitted infection (STI), while others had contrary opinions that circumcision has little or no effect in terms of HIV prevention.

In 2005 the results of a South African study on randomised controlled trials (RCTs) of male circumcision for the prevention of HIV acquisition in heterosexual males were published,[13] followed in early 2007 by similar publications in Kenya[14] and Uganda[15]. In the light of these results we were able to assess the efficacy and safety of male circumcision as an intervention to prevent heterosexual acquisition of HIV infection by men through heterosexual intercourse. It is worth mentioning that the three RCTs conducted in South Africa, Kenya and Uganda used large sample sizes: 3 274, 4 996 and 2 784 men, respectively, between 2002 and 2006. Circumcision was performed using commonly used surgical methods. All three studies were stopped early due to significant results obtained from the interim analysis (analysis done before completion of the trials). Results showed strong evidence to support the claim that circumcision helps in HIV prevention to a significant extent. Overall, the potential for bias in these trial results was considered to be low or moderate.[23]

Another meta-analyses revealed the following: circumcision in heterosexual men significantly reduced the risk of acquiring HIV infection by 54%(95% CI; 38–66%), over a two-year period, compared with uncircumcised men, and over a one-year period the risk of acquiring HIV infection was reduced by 50% in circumcised men compared with uncircumcised men.[23] During the trials it was also noted that the occurrence of complications following the surgical circumcision procedure were very low, indicating that circumcision conducted under these conditions is a safe procedure.

Therefore, in view of the current evidence, recommendations have been made to policy makers to implement male circumcision as an additional measure in HIV prevention programmes. However, policy makers do need to consider the local culture and the environment in which the circumcision is carried out. Future research may focus on other issues, such as: the effect of male circumcision on the women partners of circumcised men, and whether it is protective, neutral or harmful to the women partners;[23] or on the feasibility of implementing the procedure in different contexts; or on the social and cultural issues regarding implementation and cost effectiveness of such implementation. Note that the effect of male circumcision on HIV transmission during anal intercourse, both in men who have sex with men and in men who have sex with women, remains unclear.

Circumcision cannot be a stand-alone procedure and should be integrated with behavioral and reproductive health counseling in order to minimize both complications and the risk of HIV infection[7].

Medical problems associated with Xhosa circumcision

The traditional surgeons **(ingcibi)** perform the actual initiation surgery with the use of a traditional spear **(assegai** or **umdlanga)** and thereafter the traditional attendants **(ikhankatha)** take over the wound management.[2] Traditional leaves are used as medicinal cover, with a crepe bandage. Initiates are exposed to an unsterilised and unwashed blade, which may also be used on dozens of other initiates in a single session, leading to high infection rates and other complications.[3] Initiates are not allowed to drink water or take salt as it is believed that this prolongs wound bleeding and healing.[2,3] Unhealthy surroundings, like cold and dusty holding rooms, and incompetent attendants, have also been cited as factors that contribute to dehydration, wounds and respiratory infections.[2] Complications have been attributed to unqualified surgeons, negligent traditional attendants, irresponsible parents and medically unfit youths.[2]

In Eastern Cape many initiates have died following circumcision and others have to face life with mutilated genitals.[2] Medical problems that the initiates are exposed to include: poor wound healing, infection of the penis with gangrene, septicemia leading to

pneumonia, meningitis and acute renal failure.[2,3,10] Therefore the use of appropriate surgical instruments and wound care needs to be emphasised to the traditional healers.[24]

Several medical conditions have been associated with botched circumcision surgery, including delayed wound healing, wound infection, swelling or hematoma, insufficient skin removed, loss of blood or haemorrhage, septicemia, keloid formation, renal failure, genital mutilation, and ultimately death. The most common condition in the Umlamli community, and which continue to add to mortality, is severe wound infection, leading to septicemia; haemorrhage; and severe dehydration, which can lead to renal shut down and death. Most complications are the result of poor operational technique and poor wound care, leading to a high rate of infection. It is also clear that the traditional surgeons are ignorant of the anatomy of the penis, and individual variability. This has led to a high rate of amputation, and often haemorrhage that could not be controlled at the initiation school.

Fundamentally, the unhygienic manner in which the surgeons carry out the procedure, without gloving or washing hands in between circumcising the boys; the use of a single spear or assegai on many initiates, without sterilisation; the cold environment, especially during the winter period; poor knowledge about wound care; and the boys' poor nutrition status, with fluid restrictions, are major contributors to the post-circumcision complications experienced within the Umlamli community.

Research question/Problem statement

What strategies can help to reduce the risk factors associated with the high number of complications and the mortality rate of traditional male circumcision in the Umlamli community?

AIMS AND OBJECTIVES

The main purpose of this research project was to design, implement and evaluate a project to improve the safety of traditional male circumcision practices in the Umlamli community, with the ultimate goal of reducing the associated high number of complications and the mortality rate.

Objectives of the study

1. To design a project using outcome mapping with the help of the local 'safe circumcision group'
2. To implement the project using the identified strategies in the outcome map
3. To monitor and evaluate the success of the project using outcome mapping.

METHODOLOGY

Setting

The study was conducted in the Umlamli community in the Ukhahlamba district of the Eastern Cape (South Africa). See Table 1. The total population is about 140 000 people. The community comprises 12 villages, with five feeder clinics that refer to Umlamli Hospital – a district hospital that serves the community, and where the author works. It is mostly an illiterate community, with literacy levels below 15%. It has one secondary school and two primary schools in the area. The adults are mostly farmers. It is a community dominated by children and infants. See Table 2. The adolescent males in the community are enrolled into a circumcision or initiation school after a pre-circumcision examination at the district hospital, usually in June or December, which are the seasons for the circumcision ritual. In this study use was made of the June 2010 circumcision as the period of intervention, while using statistics from 2007 to December 2009 were used as the basis for evaluation of the safe circumcision group's (team's) intervention. Neonatal circumcision and female genital mutilation are not practiced in this community, but are rather seen as taboo and against the community's cultural rites.

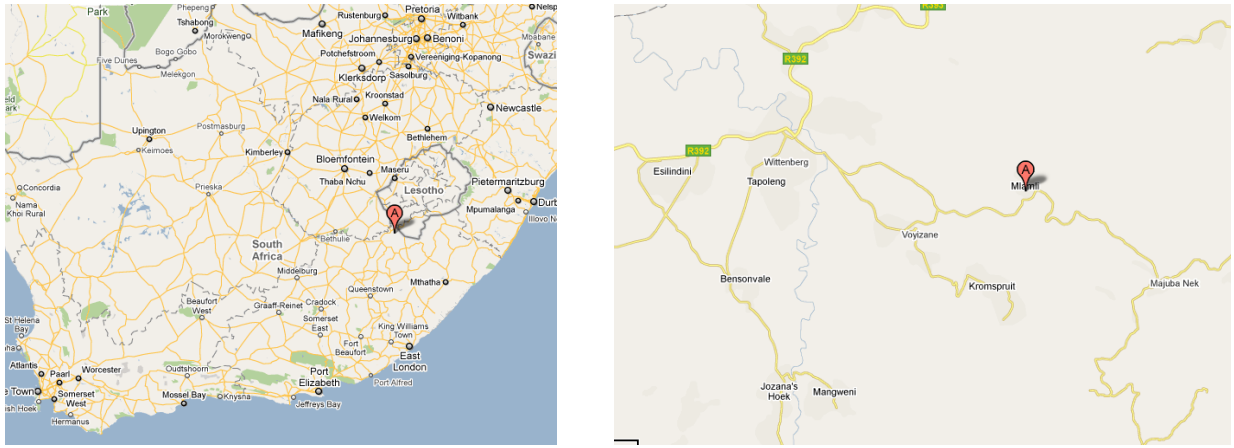

Figure 1: Maps showing Umlamli and the surrounding area.

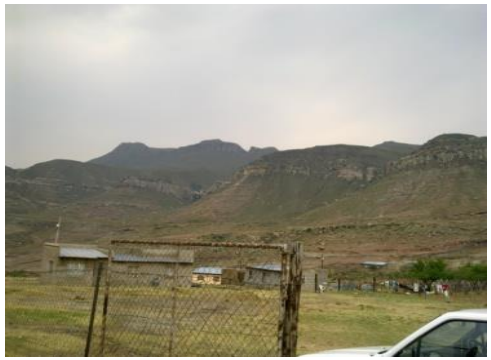

Figure 2. Umlamli Hospital, the community and surrounding area.

Research design

This study used outcome mapping[25] as a method for project design, monitoring and evaluation. Outcome mapping was chosen because it has been successfully applied in other studies within complex social systems, where a development project attempts to accurately describe their contribution to a desired impact, without having to prove a direct cause-and-effect link between the local interventions and the ultimate impact. The goal is to effect changes by remodeling the behaviours of the boundary partners.

This study design involved three main steps (see Figure 3):

1. intentional design
2. outcome and performance monitoring
3. Evaluation.

The initial mapping involved systematic participatory planning of the project design as well as the associated monitoring and evaluation. The use of outcome mapping was suitable as it is a participatory process that can be empowering. Emphasis was on reflection about what has been learnt and then adapting the interventions in the light of experience obtained.

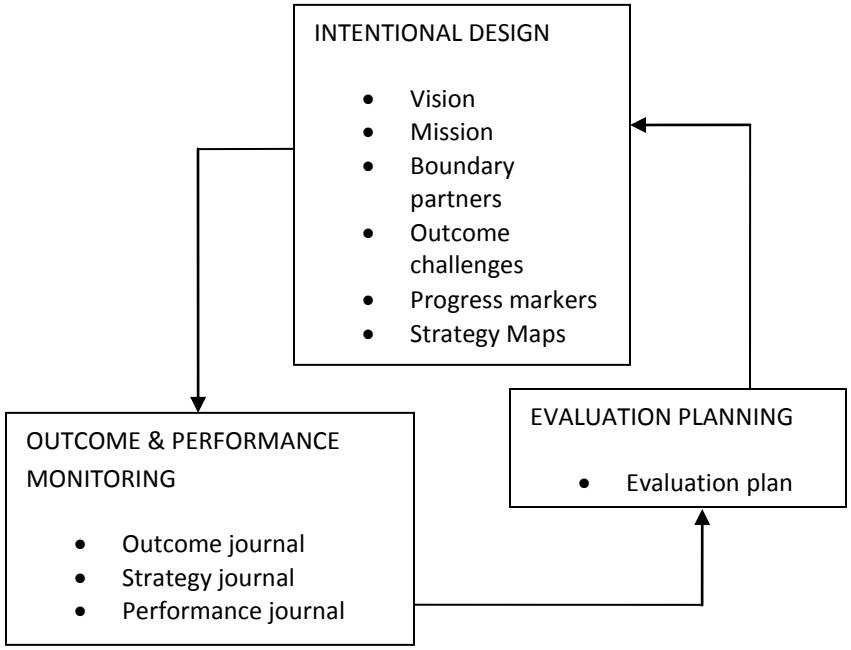

Figure 3: Diagram of the outcome mapping process.

Outcome mapping team

The number of proposed team members was 15, including the principal investigator who led the team throughout the project. This number comprises the following people:

1. The principal investigator (the doctor)
2. Four male nurses identified by the advisory group (community leaders) from the feeder clinics
3. The community youth leader

4. Two trained community health workers nominated by the advisory group
5. The head of the safe circumcision group from the community (besides the researcher)
6. The community head of the traditional healers
7. The coordinator of the traditional surgeons in the community
8. The outpatient department clerk at Umlamli Hospital – also from the community (research assistant)
9. The chairman of the hospital board
10. The chief administrative officer of Umlamli Hospital
11. The Catholic priest in the community, who has resided in the community for eight years and was nominated by the advisory group. The advisory group was made up of eight elders/community leaders from the twelve villages of Umlamli community and their principal role was to advise the team on communal and cultural values, as well as to communicate effectively the teams objectives to their community members.

This team was selected with the help of the principal investigator and from nominations made by the community leaders. Selection criteria were based on the people's potential influence, other activities that they had been involved in the past, and their interest in community activities. The team met every two weeks from February onwards, aiming to target the June circumcision, and also at the end of the ritual, to assess the progress made with boundary partners. With the assistance of the team doctor, scores were assigned to reflect the extent to which each progress marker had been achieved – as high (score 2), medium (score 1) or low (score 0). A final score was calculated for each boundary partner and expressed as a percentage of the total score if all progress markers were achieved.

At the end of the ritual, during the final reflection meeting, the results of the questionnaire survey on the effectiveness of the teamwork and how the team had performed were assessed (see Table 2 in the results section). The scores assigned – on a scale of 1–5, with 1 being poor and 5 being good – were used to assess the team function. The questionnaires were in English and in Xhosa. The

team members who could not read were assisted by the research assistant. After the team members had given their scores the team doctor and the research assistant collected them and determined the final score.

In the initial meetings the team had designed the project using outcome mapping. The design of the project is described in the following sections.

INTENTIONAL DESIGN STAGE

Vision

The vision in this project was to create a better system for safe circumcision practices in the Umlamli community in order to eradicate mortality and reduce complications as far as possible. This vision was important, as it enabled the team to remain aligned with their purpose and the changes that they hoped to see.

Mission

The mission describes the contribution of the project to the broader vision. Primarily our mission was to implement a standard protocol for safe circumcision practices to be used in the community as a standard, or reference, in order to reduce complications and eliminate mortality by targeting those practices or specific activities pertaining to the ritual that are associated with high complications, such as the use of an assegai instead of surgical blades. We also intended to introduce good infection control measures because sepsis is the greatest mortality agent seen in the community. Our mission included setting up a pre-circumcision training and evaluation workshop, to be held every six months, beyond the project, in order to reinforce good circumcision practices.

Identification of boundary partners

Boundary partners were individuals, groups and organisations with whom the project interacted directly, and with whom the project anticipated opportunities for influence. They were not controlled by the project but rather influenced through the sharing of new resources, ideas, skills or opportunities. The project identified eight boundary partners, as shown in Figure 4.

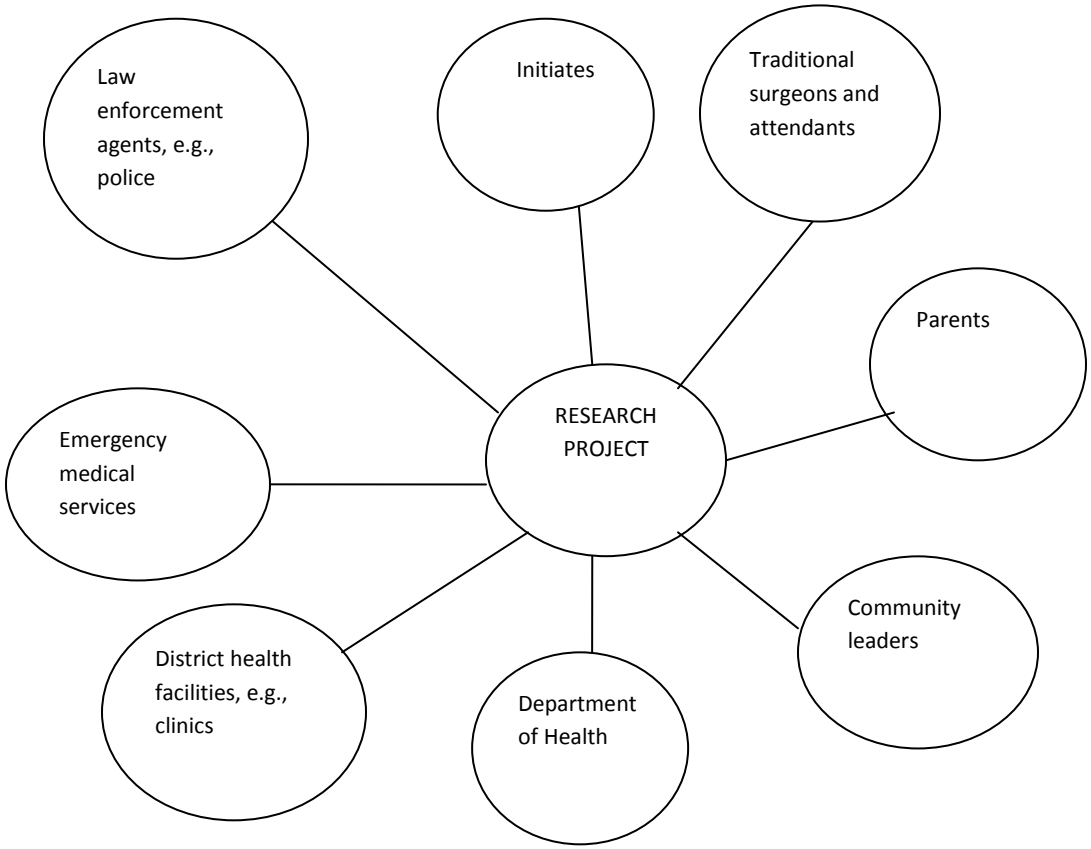

Figure 4: Diagram of boundary partners.

Outcome challenges

The team then defined outcome challenges for each of the boundary partners in terms of the changes that we intended to see in their behaviours, relationships or activities that would help the project achieve its objectives. The outcome challenges for each of the boundary partners are outlined below.

Initiates

We would like to see the following:

- That they are fully informed about the new practices introduced and that they are ready to apply them for their own safety
- An improvement in their behaviour, in terms of reporting complications and accepting treatment when there are complications
- Their acceptance of the new regulations, including being of the correct age for the ritual (16 years and above) and avoiding the use of illegal circumcision practices.

Traditional surgeons/attendants/healers

We would like to see the following:

- That they embrace the new practices to be introduced and use the standards set by the project, like the use of surgical blades instead of an assegai
- Improved practices after attending the courses before each initiation
- That they observe the correct infection control measures
- An improvement in prompt recognition of complications
- That they support the facilitatation of prompt referral if/when any complications are identified.

Parents

We would like to see the following:

- Their acceptance of and support for the project, by being responsible in terms of adhering to the required age of initiates for the ritual
- Their respect for and obedience to the community and state laws, in order to eradicate illegal circumcision schools in their area
- Male circumcised parents or guardians visiting the schools at intervals and raising the alarm when necessary, as part of their responsibility to ensure the safety of their children (this is possible as access to the schools is not restricted to circumcised community members).

Community leaders

We would like to see them:

- Support and encourage the use of the safe practices proposed by the team to their followers
- Create rules governing the use of the project's practices and actually enforce them, discourage the use of illegal circumcision schools, and also discourage irresponsible parenting, i.e., parents sending underage boys for the rituals.

Department of Health: province

We would like to see the following:

- Assistance with materials for the rituals, e.g., provision of surgical blades, medications, blankets for use in winter and materials for the construction of standard tents to assist the initiates in withstanding the environmental hardships during the ritual
- Assistance with the 6-monthly training and evaluation sessions of the traditional surgeons and attendants, and providing certificates of endorsement when the attendees are fully qualified
- Assistance with reinforcement and upholding of community law, and promoting the use of the safe Circumcision Act of 2001, which is being used in the current project as a guide.

District health services

We would like to see the following:

- Health practitioners identify and treat complications as they arise, and refer promptly if the problem is beyond their scope of practice or capacity
- That they support and assist the project by offering the required materials and a venue for the training of those involved with the rituals
- That they provide health personnel to visit the initiates frequently, and to attend to complications or refer if necessary.

Emergency medical services

We would like to see the following:

- That they are aware of and support the proposed practices by sending out special ambulances for transporting initiates to an appropriate place for treatment, depending on the complications
- That they accept, and are involved in, the training proposed by the project team

- That they use mobile telephones to make calls to clinics or the hospital before transporting any initiates, to help in triaging, or making concrete plans for prompt treatment.

Law enforcement agents (police)

We would like to see them:

- Fully involved in the project, and discouraging and bringing to justice those involved with illegal circumcision schools
- Fully involved with the verification of those directly involved with rituals, like the surgeons, to confirm that their certificates are registered and updated.

Strategies

In order to achieve the outcome challenges and the anticipated progress markers the project team considered what strategies or activities were necessary to effect positive changes. These strategies were aimed at the activities of the boundary partners. The strategies or activities that were considered were the following:

Initiates and their parents or guardians

- The project developed educational talks as part of the pre-circumcision examination for initiates and parents, using the nurses in the team and the project coordinator.
- The project reinforced that initiates are of the correct age by using IDs or birth certificates, or age declaration with a parental consent form fully signed at entry to the circumcision school.
- The project ensured that a pre-circumcision examination and certificate of fitness was issued and signed by a physician before the initiates could proceed to the initiation school.

Traditional surgeons/attendants and healers

- The project embarked on a special education programme and activities to make traditional surgeons aware of the project and its goals.
- Training workshops over three days were organised and conducted by the project team, with the principal investigator and the provincial representative from Bisho. The training focused on safe circumcision practices, infection control and HIV. The intention is that these workshops will continue to be held, even on completion of this project. They will be conducted by the team, twice a year, a month before the initiates are enrolled into the school, as part of a community oriented practice. Skills related to prompt identification of complications and seeking immediate help form part of the skills workshop.
- The project created a platform for obtaining resource materials from the hospital and relevant stakeholders, to be used during the workshop as well as during the initiation itself.

Department of Health: provincial and district health services

- The project also created a system for collaboration between the Department of Health (DoH) and the community district structures, particularly the Umlamli Hospital, to assist with the provision of support in terms of resources and materials to be used, and also to assist with training.
- The project equipped and organised the clinics and the hospital for handling emergency situations, like the provision of emergency medications and standard first aid materials, before transfer of initiate with complications to the appropriate facilities.
- The project coordinated effective communication between the community health structures and the emergency medical services (EMS), as well as an effective triage system, to prevent undue delay in obtaining appropriate treatment. For example, during the time of circumcision a special ambulance was to be set aside by EMS for prompt transfer, and the principal investigator was available to treat and refer if deemed necessary.
- The district hospital prepared the venue for training since it is at the centre of the community and readily accessible to trainees. It also provided transport for the team members to attend meetings.
- The DoH, as one of the boundary partners, helped to equip and standardise the EMS with skilled personnel (such as trained paramedics) and provided all the equipment necessary for the survival of initiates before they reached the treatment point.

Community leaders/elders and the law enforcement agents (police)

- The project obtained the consent and support of the community leaders and elders, and then used them as a medium for information dissemination before and during the project. This enhanced the trust and acceptance of the project by the community.

- The project also obtained the backing of the police and the community leaders to adopt a punitive measure for those practicing illegal circumcision in the community. As was requested, a special police task team (two police officers) was delegated to circumcision issues.
- The project ensured that the community leaders reinforced the importance of pre-circumcision examination for all the initiates as well as the presentation of certificates of fitness, together with a parental or guardian signed consent form, before the initiates were accepted for initiation.

Progress markers

For each boundary partner's respective outcome challenge (as mentioned above) the project defined specific progress markers (see examples below). These were graduated stepping stones that the project employed as monitoring tools. These specific progress markers were defined at three levels:

- *What we expect to see* – immediate reactions of boundary partners to the project initiatives, for example attendance at meetings
- *What we would like to see* – real engagement with the intended changes, for example, use of circumcision materials provided, the participation of those involved with initiates in training and updating their skills, and behaviour changes in terms of responsible parenting, as well as acceptance of treatment by the initiates, if required, without hesitation
- *What we would love to see* – deeper changes in values, goals or beliefs of the boundary partners, for example, that the traditional surgeons or attendants are actually using the guidelines, and that they understand and fully apply the safe Circumcision Act in the actual ritual, using the traditional surgeon as an example in terms of setting progress markers.

Table 2: Example of progress markers/assessment (traditional surgeons)

Expect to see	That all the traditional surgeons update their certificates by attending the arranged workshops
Like to see	That they accept and try to use the safe method of circumcision proposed by the project at the next circumcision school
Love to see	That they continue to use the new protocol in subsequent circumcision rituals That they also recognise complications promptly and then call for help for referral to an appropriate facility

ORGANISATIONAL PRACTICES

The programme made use of the eight organisational principles outlined for a programme focusing on organisational practices for rural entrepreneurship, as similar complex context applies with circumcision practices.

These principles were

- Prospecting for new ideas, opportunities and resources
- Seeking feedback from key informants
- Obtaining the support of your next highest power
- Assessing and redesigning products, services, systems, and procedures
- Checking up on those already served to add value
- Sharing your best wisdom with the world
- Experimenting to remain innovative
- Engaging in organizational reflection.

In the search for new ideas and opportunities to remain innovative, the team made use of data available from the district hospital and feeder clinics to obtain baseline statistics, such as: common complications in the community, the areas in which there were a high number of complications, mortality statistics and the reasons for mortality, common reasons for hospital admissions, and others.

Information about the latest complications and mortality statistics within the province and government legal stands on the issue of circumcision was obtained by the principal investigator from the internet or newspaper sources. The team sought the opinions of the community leaders (advisory group) and as well as the views of the DoH through the district coordinator in charge of the ritual in the UKhahlamba district, in an effort to create a forum on how we could help each other to ensure a safe ritual.

The team met every two weeks, between February and May, to discuss and plan strategies that could be employed to achieve the set goals in terms of the change in behaviour we hope to see in the boundary partners.

Support from the community and as well as the approval for the team was sought before the team started any activity. The team continues to keep in touch with the community to ensure that the programme aligns well with community values and views. We also identified areas for support and funding towards the achievement of the set goals, for example: a venue for meetings and transport for the team was arranged through the district hospital, and materials for circumcision such as blades, gloves and bandages were donated by the hospital and the district office. The team, with the help of the researcher, organised three-day workshops for the traditional surgeons and attendants to enable them to improve their surgical technique and infection control measures. In future this should be routinely held before every circumcision ritual. It would be ideal to invite provincial representative, to monitor and assess the programme. The team would welcome any recommendations they might make.

Immediately after circumcision rituals, precisely two weeks after the last batch of initiates pass out of the initiation school, the team sat to assess and reflect on all the processes that we had employed, what was done well, and what needed to be changed. This should be part of the organisational practice cycle.

MONITORING AND EVALUATION STAGE

The outcome mapping project was monitored at three different levels on a regular basis by the project team. The **first level** of monitoring involved using progress makers to assess progress towards achieving the outcome challenges that we set for each boundary partner. An outcome journal was used to record the level of change by periodically rating the achievement of each progress marker as

follows: low (L), medium (M) or high (H). The outcome journal also included the description of changes observed, including which specific boundary partner changed, the factors leading to the changes, and the documentary evidence for change. It also included any unexpected or unanticipated changes that occurred, lessons learnt, and any changes that needed to be made to the project.

The **second level** of monitoring involved monitoring of the proposed strategies on a regular basis by the team. This required reflection on and revision of strategies. The monitoring included the description of the specific strategy performed and how effective this was in terms of the outcome or desired effect, and the lessons learnt, and what changes the programme should adopt to achieve more positive results. The monitoring of and reflection on the strategies were documented on a regular basis using the strategic journal.

The **third level** of monitoring involved the project team itself, and its organisational practices. It involved team reflection on how well the team performed, as well as eliciting feedback from key boundary partners on their experience of the team. The team reflected on the values embedded in the project organisation (e.g., respect for the traditional leaders, confidentiality) as well as the effectiveness of their team work. A questionnaire was used for assessing the effectiveness of the team.

EVALUATION STAGE

Evaluation was done collectively by the team, but designed and supervised by the principal investigator, taking into consideration his level of expertise and knowledge.

The team generally used simple monitoring of rates of complications and mortalities from the district and compared these with the complications and mortalities from the area of study, and also hospital records of admissions and complications from past years before the intervention, and then compared them with the current situation. The province has a special notification form designed for reporting complications and mortalities from circumcision. The district makes use of the form and reports back to the province on the actual complications from their different areas.

This project used the notification form for reporting and recording the complications and mortalities. We obtained the overall district statistics from before and after the project, and compared data with that of the area under study, to determine whether the project appeared to be making any impact in terms of contributing to the desired outcomes.

Ethical considerations

The members of the safe circumcision group formed the team responsible for the design, implementation and monitoring of the project. All members of the team signed written informed consent to participate in the research. No data with personal identifiers were collected, analysed or reported on.

The boundary partners were not directly involved in the monitoring and evaluation aspects of the project and therefore were not required to sign informed consent. The project itself did not make any direct interventions on the initiates or patients. Initiates attending the health centers received treatment as usual from the normal health workers and the usual requirements for consent applied.

Due to the recent political nature of the ritual's practices and processes, permission was sought from different authorities or stakeholders, such as the DoH at the district office, and the community leaders.

RESULTS/FINDINGS

Morbidity and mortality

A total of 92 initiates were enrolled into the June 2010 circumcision ritual. Prior to this they were all physically examined at the local district hospital (Umlamli) and obtained certificates of fitness. This was important, as baseline health data of the initiates were recorded. Data on complications and mortality were collected from both the district and the entire province, and compared to data in the community. In June 2010 the Eastern Cape DoH recorded 38 deaths from circumcision. The district hospital (Umlamli) had two

admissions due to haemorrhage and penile sepsis, but no deaths. This can be compared with past statistics from the community on complications and mortality, as shown in Table 1.

Reflections on strategies

During the monitoring meetings the team reflected on how the strategies defined in step 6 of the outcome mapping method performed in terms of the implementation and effectiveness, and how the team adapted or learnt from the results. A strategy journal was used as part of the monitoring process to record these reflections. Results are shown in Table 4 (a–g).

Table 4: Monitoring of strategies as per the strategy journal for each of the boundary partners

(a) Initiates:

Strategies	**People responsible**	**Description of activities implemented**	**Effectiveness of the activity**	**Programme follow-up required / lessons learnt**
Compiling educational talks	The medical team (doctor and nurses), parents and community elders	The initiates were spoken to before the pre-circumcision examination on the purpose of the programme, the reasons for pre-circumcision examination, and the availability of an isolation room for handling any complications. The initiates were also spoken to about treatment and the need to accept treatment promptly, without hesitation. Parents, guardians and elders were requested to reinforce the information.	It was very effective as the two initiates with complications accepted treatment on time, and all 92 participated in the pre-circumcision examinations before certificates were issued	This will be part of the routine approach in future circumcision seasons
Setting an acceptable age limit	The elders, the medical team,	The team and community elders	This was effective as no parent presented	This will continue in future circumcision seasons

for initiation as complications and mortality are thought to be higher in younger people	parents, guardians and the initiates themselves	agreed on age 16 and above, and the requirement for IDs. If IDs are not available, and for initiates below 18, affidavits are required and parental or guardian consent is required (the forms should be fully completed and signed).	initiates below 16. IDs and affidavits with consent forms were provided and fully signed as required before pre-circumcision examinations were carried out.	
Ascertaining medical fitness. as inadequate medical examinations has been cited as one of the factors responsible for mortality.	The principal researcher/doctor	Initiates are normally consulted, their medical history is obtained, they are physically examined, blood for a full blood count is collected, and other investigations are done if required (according to findings). All received tetanus toxoid and benzathine penicillin as standard injections.	This was effective as baseline health data for initiates were now available, and those with high risk were fully monitored. This ensured that potential problems were anticipated, and these initiates monitored more closely. (Amongst the initiates two were on insulin injections, six were known epileptics on treatment, one was treated for TB in 2006 and had completed the course, and two had been treated for minor penile warts with	Although the value of different tests and preventative treatments has not been proven, the identification of initiates at higher risk enabled a higher degree of monitoring and intervention if required, as normal medications are allowed to be taken during the ritual

			podophylline –and went with the second batch of initiates. HIV status and veneral disease research laboratory (VDRL) results were negative.)	

(b) Parents:

Strategies	**People responsible**	**Description of activities implemented**	**Effectiveness of the activity**	**Programme follow-up required / lessons learnt**
Getting the parents to accept a minimum age for initiates to undergo circumcision	The team, the community elders and the police	Educational talks were arranged both at the point of the pre-circumcision examination and at the community level, where elders assisted by speaking about the agreed age, and the reason for it. Supporting IDs and affidavits, as well as parental consent, when required, was demanded.	A positive influence was achieved as parents cooperated, and only initiates of suitable ages and with the necessary documents were put forward	This should continue, as a routine, in subsequent rituals
Acting within the boundaries of the community rules to eradicate illegal circumcision schools	The community elders, the team and the law enforcement agent (police)	Penalties for offenders were instituted and the police are meant to arrest people operating illegal schools. The number of circumcision schools was reduced to only two big schools that can accommodate more than 60 initiates	This was effective as parents acted responsibly in support of this, and helped in reporting people who were operating such to the community elders and police. Five illegal schools were closed down but only 4 people were arrested (one escaped	Having only 2 approved schools means that it is easier to monitor initiates for complications, and ensure that basic standards at the schools are adhered to

		each.	and is still being sought by the police).	
Encouraging parents or guardians to visit the initiation schools at intervals as part of their responsibilities	The team and the community elders	This was emphasised in the educational talks. The community elders also held meetings with the parents and reinforced this responsibility.	Reports from the monitoring team and the community elders confirmed that parents checked on their loved ones at the schools, at intervals, as instructed	This should also be routinely carried out as part of the recommendations. The lesson learnt is that routine parental checks are favourable to the required outcome.

(c) Traditional surgeons and attendants:

Strategies	**People responsible**	**Description of activities implemented**	**Effectiveness of the activity**	**Programme follow-up required / lessons learnt**
Organising skills training workshops	The team, the district health system and the DoH	Three day training workshops on safe circumcision practices, infection control, prompt recognition of complications, and HIV were organised during the month preceding the initiation	This was very effective as deficiencies were discovered, especially in areas of surgical techniques and infection control practices. Corrections were made and certificates re-endorsed by the principal researcher.	The skills update workshops were endorsed by the team, the community, and the surgeons. They will be held each season, before circumcision, as they improve confidence, especially as related to the use of surgical blades that are still new to some surgeons.
Encouraging the use of acceptable methods of circumcision	The team, and the community elders are responsible for ensuring that the surgeons comply	Materials for circumcisions like surgical blades, gloves, bandages, and antiseptic solutions were provided by the district hospital. Elders encouraged initiates to practice this as safety is the ultimate goal.	The surgeons put into practice the use of correct methods; they used surgical blades, gloves and infection control practices ,such as hand washing and antiseptics	The surgical materials should continue to be offered prior to and during the ritual, in association with the workshop

(d) Community leaders:

Strategies	**People responsible**	**Description of activities implemented**	**Effectiveness of activity**	**Programme follow-up required / lessons learnt**
Setting community rules governing the Circumcision Act of 2001	The team, the police and parents should ensure that the elders comply	The age limit of initiates was set by the elders as underage initiates are prone to higher complications. Rules on punishment and the handing over of illegal practitioners were also set by the elders. Parents were involved in meeting with community leaders.	Parents and initiates complied with the rules as initiates of the correct age presented, supporting documents were shown, illegal circumcision schools were closed, and illegal offenders handed over to the police for justice	The establishment of clear rules endorsed by the community leadership was very fruitful
Working with community leaders so that they can disseminate the team's vision and objectives	The team	Talks and meetings were arranged between the team and the community elders, where their role as community role models was emphasised	Elders emphasised their roles and encouraged initiates to have pre-circumcision examinations. They also talked to parents on responsible parenting. This had a huge impact, as everyone did play the part expected of them	Elders must be consulted if any programme like this is to make an impact, particularly because circumcision is culturally deeply rooted in Xhosa communities

(e) Law enforcement agents (police):

Strategies	People responsible	Description of activities implemented	Effectiveness of the activity	Programme follow-up required / lessons learnt
Enforcing justice	Police and community members	Teaming up with the community to fight injustice and bring to book those practicing illegal circumcision, maintaining peace and calm in circumcision schools as physical assault is common and one of the reasons for hospital admission which results from punishment for initiates who disobeyed the rules of the ritual.	Illegal circumcision schools were closed and those involved apprehended. The police had the support of the community; they were encouraged, and carried out their duties very well.	Collaboration between the health workers, police and community elders was fundamental to this success
Certification and authentication of traditional surgeons' certificates	The safe circumcision team	The safe Circumcision Act of 2001 was implemented as a vital tool for guidance and the enforcement of the community rules. IDs and birth	The goals and objectives of the programme were clear to the police, and community involvement enabled a positive attitude in the police to turn things around	This activity must be continued as part of the collaboration between health workers, police and community elders

		certificates were used as well as affidavits, as requested. The surgeons' certificates were evaluated and authenticated.		

(f) Emergency medical services:

Strategies	**People responsible**	**Description of activities implemented**	**Effectiveness of the activity**	**Programme follow-up required / lessons learnt**
Having special ambulances set aside for circumcision cases during the ritual season	The team, the DoH and the community to requested this	The team spoke to the people in charge of ambulances and also had meetings to discuss the possibility of ambulance availability	This was not effective as the DoH is in debt, and the district as a whole has only two ambulances and was unable to allocate one for only circumcision cases	Motivation for better access to ambulances will continue because lack of transportation or inappropriate response times continues to add to mortality, as referrals are delayed
Being involved in training and triaging of patients	The team, especially the principal researcher, EMS staff	Practical case scenarios(simulated cases) were organised by the district hospital and the team used the opportunity to incorporate its programme as part of the required training	This was effective as the medical emergency team knows how to triage patients and avoid undue delays in transport to specific centers for treatment	Triaging is important; it helps to reduce mortality as designated treatment points are reached on time, and hence unnecessary deaths are avoided
Making use of mobile phones for effective communication with the hospital or clinics	The DoH	We engaged with the EMS personnel and urged them to improve access to communication; most radios they are using cannot be used to call the treatment	Currently this is not effective as the DoH is in debt and will not be able to purchase mobile phones for ambulance teams	Effective communication is important and can save lives. If mobile phones are purchased for the ambulance team the treatment centers can be informed ahead of time and then prepare for the

		points to prepare them for cases before they arrive		patient's arrival.

(g) Department of Health and the district health system:

Strategies	People responsible	Description of activities implemented	Effectiveness of activity	Programme follow-up required / lessons learnt
Assisting with materials for circumcision	The DoH	The team engaged the hospital management and the district personnel in assistance with materials like blankets, gloves, blades, gauze and antiseptic washing liquid	This was effective. The hospital supplied materials in support of the project, they provided a venue for meetings, and assisted with the transportation of team members after meetings and initiates with complications brought in by patient transport vehicles (EMS cannot meet this demand).	There should be a clear budget for districts and for hospitals, to enable the purchase of essential materials used for circumcision, and this should be monitored
Building solid structures at initiation schools, and small isolation rooms in district hospitals solely for the management of circumcision complications	The team and communities should advocate for this	Recommendations and proposal are being planned to submit to the authorities to consider this	This request is yet to be completed and submitted	The DoH should be more involved, and liaise with communities on issues surrounding circumcision, so that both can be allies in reducing mortality
Assisting in training	The team, the	Training workshops	This was effective as	This should be a standard

and evaluation of traditional surgeons and attendants. Certificates should be issued or endorsed if they qualify.	parents, initiates and the community leaders should advocate for this	for three days were held to improve cutting skills and infection control measures. Training was provided by skilled professionals and representatives from the districts or province, and certificates were endorsed.	traditional surgeons and attendants improved their skills, and their certificates were updated	process. The DoH should train and deploy people to different district to update or refresh the skills of the traditional surgeons and attendants.

Evaluation of outcomes

The scoring of the progress markers (see Figure 5) for each boundary partner gives a quantitative indication of change which helps to support the qualitative results presented in the monitoring journals (outcome and strategic journals) later on. The figure shows that 70% or more of the planned progress was judged to have taken place amongst the traditional surgeons, initiates, police, parents and community leaders. The project was slightly less successful with the DoH, and had little success with the EMS.

More detailed reflections by the safe circumcision team on progress made with each boundary partner are reported in Tables 5–11, as a series of outcome journals. On completion of the project the team rated each progress marker in terms of whether it had been substantially achieved, partly achieved or not achieved. The ratings were high (score 2), medium (score 1) or low (score 0), respectively. These scores were used to calculate the percentage of the total possible score, as shown in Figure 5.

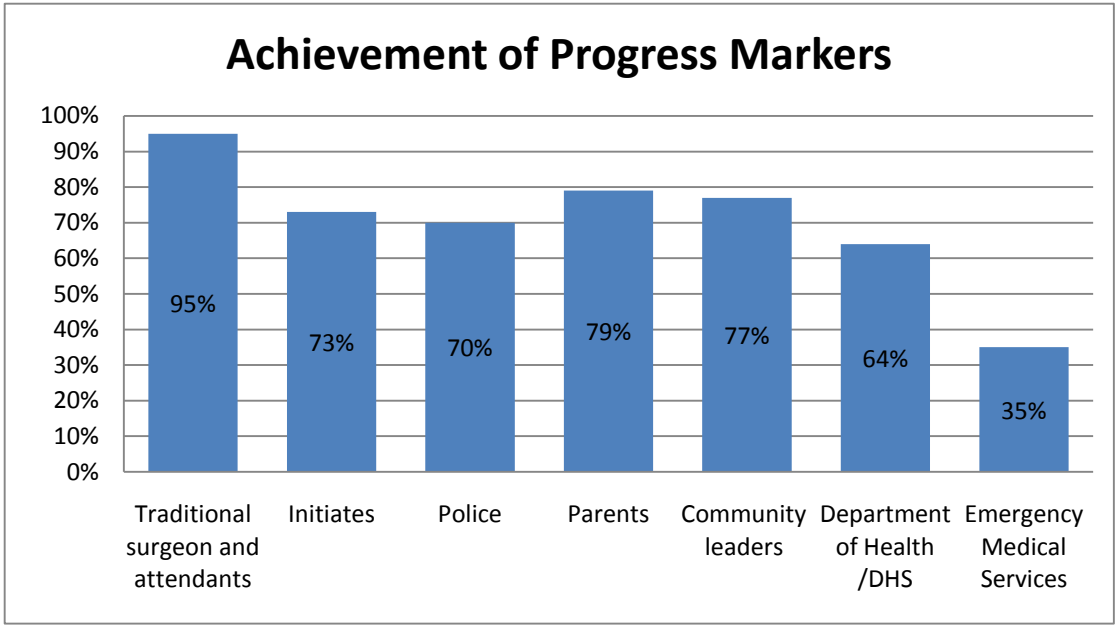

Figure 5: Percentage of the progress markers achieved by each of the boundary partners.

Table 5: Reflections on outcomes with regards to the traditional surgeons

Expect to see	Score	Description of changes seen in support of the rating
Project develops a clear vision and mission that will be acceptable to the traditional surgeons, attendants and the entire community	2	The team included the traditional surgeons and attendants as active members. They participated in the organised three days training in surgical skills and learnt a great deal, as assessed by the doctor. Their technique in the use of surgical blades was good and all applicable steps in infection control measure were applied, e.g., use of gloves and hand washing between initiates.
Project develops a clear objectives for both, using the community elders as a bridge or communicators of intended action between the surgeons and the team	2	The team, community elders and traditional surgeons held joint meetings. Elders, headed by the community leader, attended in good numbers (usually 8 were always present) and they communicated the intentions of the community. The surgeons (6) were also always represented, and there were 4 attendants at all our meetings.
The team develops a protocol or guidelines, and then expects that the traditional surgeons are aware of it and prepared to accept it	2	The surgeons and attendants requested that a standard protocol be issued as a constant reminder or guideline to follow in subsequent rituals. This depicts their commitment to continue using the guidelines that will be developed as the programme establishes itself.
Training programmes or workshops are held for the purpose of updating skills, and addressing infection control, surgical techniques and prompt recognition of complications, which the surgeon should embrace	2	Their participation was good as attendance was high: the 6 traditional surgeons and all 4 attendants attended and completed the 3-day workshop that was organised. Their zeal to effect changes was high, as seen by their use of the correct techniques for surgery and infection control practices, as assessed at the workshop by the principal researcher who conducted the training.
Like to see		
Full support for and acceptance of the project by the traditional surgeons, attendants and the community	2	They supported the team's vision and worked towards or according to the proposed activities. The head of the traditional surgeons stated: "We asked the hospital board chairman and the community elders to approach the doctors, and to see if our boys are medically fit to undergo the ritual as an increase in number of deaths is not acceptable". They supported the application of the Circumcision Act of 2001, and requested initiates to

		have a medical fitness assessment. They agreed to not accepting anyone without a certificate. All 92 initiates had certificates of fitness issued before acceptance, as documented by the 4 nurses, according to hospital records.
The safe method of circumcision proposed by the project is accepted and used, and the training courses be attended	2	The reports from the 4 nurses that were part of the team who visited the school twice weekly, the parents that visited the school and the initiates spoken to randomly by the team nurses revealed that the traditional surgeons used surgical blades during the cutting process and applied good infection control practices by wearing gloves and washing their hands between initiates
A workshop is held before each ritual. This will serve as a form of quality assurance for recertification, or the issue of certificates to newly qualified traditional surgeons.	2	A 3-day workshop was held in May to address correct surgical methods and infection control practices, as well HIV and circumcision
Love to see		
The team, surgeons, attendants, elders and the entire community work as partners to effect positive changes	2	The community elders, the traditional surgeons and the team held two joint meetings: all 8 elders, and the 10 traditional surgeons and attendants attended. There were no absentees. All agreed on the age limit of 16 and above, with parental affidavits required for any initiates below 18. They requested the initiates undergo a pre-medical examination, and they must have a certificate of fitness issued by the doctor as proof. Initiates below the required age were not accepted, and the team kept an eye on initiates requiring medical attention; for example, we had 2 diabetic cases on insulin injection monitored by the team nurses.
The traditional surgeons and attendants put into practice what was taught in the workshop	2	The number of initiation schools was reduced to only two big schools (each can accommodate up to 60 initiates) to facilitate the monitoring of both initiates and proposed activities. The surgeons used the blades provided, washed hands and wore gloves between initiates – hence implementing and practicing what they had been taught. This emerged from feedback from the team nurses and the traditional surgeon head, and reports from the initiates themselves.
The protocol be used as reference by the surgeons and the elders, and there be a call to order if there are any	1	With their acceptance, anticipation is high that they will continue to use the protocol when implemented

defaults.		

Summary of the description of changes to date: The head of the traditional healers and coordinator of the traditional surgeons attended all the meetings and actively participated in the construction of the team's vision and mission. In turn, they met with the traditional surgeons from the 2 schools in the area and explained the project. A workshop was held in May prior to the June ritual, at which the 6 traditional surgeons and the 4 attendants were trained in carrying out surgery with scalpel blades, infection control, and issues related to HIV. They represented surgeons and attendants from the two accredited schools. Subsequently, more than 160 surgical blades and pairs of surgical gloves were distributed to the surgeons and attendants by the district hospital. During the ritual itself the 4 nurses from the team, parents or guardians, and the community leaders visited each of the schools and observed that the surgeons were using the surgical blades and gloves provided. This they confirmed at the meetings.

People and circumstances that contributed to this change: The key people that contributed to this change among the traditional surgeons and attendants were the community elders who, together with the head of the traditional surgeons, stated that medical fitness and improved practices are important to both the initiates and the surgeons, respectively. The team doctor and the 4 nurses who provided the training were also instrumental to the changes observed.

Lessons learnt: The key lessons learnt were that traditional surgeons and attendants are open to engage with the health system when they are approached in a supportive and respectful way, and they understand the importance of the change.

Table 6: Reflections on outcomes with regards to initiates

Expect to see	Score	Description of changes seen in support of the rating
Accept the programme and the team	2	There was active participation in the programme, and willingness to undergoing pre-circumcision examinations. All the 92 initiates attended the pre-circumcision assessment at the hospital. In previous years, we used to have usually less than 40 of the more than 100 that enrolled at the initiation school coming to the hospital for examination.
Accept the age standard set by the team and the elders of the community	1	About 60% were above 18 but the others were below 16 – this is a 'grey area' that needs to be sorted out by the team and community elders, although the age of 16 and above is currently accepted. All the patients below 18 came with affidavits and signed parental consent forms.
Help to discourage illegal circumcision by enrolling in the programme	2	Active participation in the research and also parental involvement and encouragement was high. As stated, 92 initiates enrolled, presented for pre-medical examination as required, and obtained certificates of fitness for enrolment as signed by the team doctor. Parents also provided support by playing their part: they spoke to the initiates during the health talks, attended some of the team meetings, and provided documents required for confirmation of boys' age when required.
Cooperate, and encourage each other, before the ritual	2	The initiates were observed during health talks and there was deep family involvement. One of the initiates confirmed that he was "too scared before, but now having our parents and the elders behind us means a lot to me", and another stated "I will accept treatment and will encourage others to do so".
Like to see		
Articulate the vision of the programme and its relevance locally	1	A deeper involvement in the activities and evaluation responses from the initiates about their feelings is desirable. As part of motivation to accept treatment they were shown the isolation rooms. Their overwhelming response was that it was fine and they would like the project to continue, even for initiates coming after them.
Participate in the pre-medical examination	2	All the 92 initiates participated and had certificates of fitness issued by the medical officers before proceeding to the initiation school
Present birth certificates and affidavits as proof of age, and a sign of commitment to the programme	2	They all produced either IDs or affidavits, and parental or guardian consents forms were fully signed, as endorsed by the team and community elders
Request the traditional	1	During health talks they expressed their support of the use of surgical blades, but would

surgeons to use the acceptable methods adopted by the programme, and use correct infection control practices		not refuse if the surgeons think otherwise – as the ritual is important to their social status. Opinions from the 4 male nurses in the team confirmed that initiates stated that surgical blades were used and gloves worn for each person.
Opt for immediate treatment and accept hospital admission when necessary	2	The 2 initiates that had complications were brought early for treatment, as was agreed to by the team, community elders and the initiates. One had a haemorrhage that was stopped and the other was treated for sepsis. Both were satisfied before they returned to the school, as confirmed by the principal investigator and responses from the boys. Both initiates subsequently completed the ritual.
Love to see		
Play a leading role in ensuring the safety of other initiates after them	1	Post-circumcision, the initiates were reluctant to discuss issues with uncircumcised individuals. About 11 initiates attended the post-evaluation meetings and agreed that this vision should continue. They offered to help convince other initiates, like their brothers, about what the team intends to achieve.
Form an interest group and assist the safe circumcision group in the programme cycle in future	0	No interest group on circumcision wellness has yet been formed, but the initiates that attended the meetings promised to form a group to assist others, as requested of them by the doctor.
Summary of the description of changes to date: Initiates embraced the programme and fully participated: all 92 who enrolled for the programme presented for their medical examinations and obtained fitness certificates. They also provided identification papers and parental consent, as required. Prompt acceptance of treatment during complications was seen in the case of the two initiates who were hospitalised, in contrast to behaviour seen in previous years.		
People and circumstances that contributed to this change: The people that contributed to this change were the team who organised educational talks, and provided the platform for examination of the initiates and prompt availability of treatment by the doctor. The community leaders, parents and guardians contributed as they spoke to their people on the team's vision, and requested that the initiates undergo examinations, obey age limits and accept treatment when necessary.		
Lessons learnt: Initiates, when spoken to and supported by their parents and elders, will be more confident to take charge and ensure that safe practices are used, as proposed, and realise that an early treatment response is life saving. A focus group on circumcision safe practices should be formed, reinforced and supported, as requested by the initiates and the principal investigator		

Table 7: Reflections on outcomes with regards to parents and guardians

Expect to see	Score	Description of changes seen in support of the rating
Accept the programme and the vision	2	Their active involvement and cooperation depicted their acceptance of the programme. They supported their children by accompanying most of them. Some attended the team meetings on different occasions and were sometimes helpful during the health talk.
Encourage the initiates to undergo pre-medical examination	2	Most parents or guardians accompanied the initiates to their pre-medical examinations, and participated in the health talks and encouragement organised by the team
Contribute to the success of the programme	2	They were actively involved and played the required parental roles, as was evident from the team's report. They provided consent forms when required and accompanied those without identification numbers to the police to obtain affidavits.
Like to see		
Participate in the programme by active interaction with the team	1	Most became involved in the health talks given, asked questions, and encouraged initiates to accept treatment, as proposed by the team. Most attended the meetings organised before, during and after the circumcision period.
Provide birth certificates and affidavits when required	2	They provided proof of age of initiates when required, and also accompanied those who had their own IDs and affidavits
Visit the school as part of their responsibilities	1	Reports from the team members, especially the nurses, revealed that parents visited the circumcision schools at intervals and all were happy with the situation on the ground. At post-circumcision meetings that were held for reflection, parents who attended spoke about their feelings. One parent who had lost his son in December 2008 stated: "If this team and such a vision was in place, Vuyo would have still been alive".
Call on the team and elders when there are disagreements with those caring for their love ones	1	Their acceptance of the programme, and cooperation, indicated that this would have taken place had disagreement arisen. Some parents refused the age limit set of 16 years and above, and did not support the idea of initiates below 18 attending the ritual.
Encourage the initiates to seek help, and accept treatment or	2	Parents were involved in the health talks and visited the schools to check on their love ones, as reported by the team nurses. Those that attended the

hospitalisation when necessary		meetings saw the isolation rooms that were available to treat the initiates, and commented on the care and secrecy that they provide.
Help expand and encourage disseminating the good vision of the programme	2	In response to the research assistant requesting feedback from the community, particularly the opinions on how parents see the value of the team specifically, it emerged that the fact that there were no deaths meant a lot to them, and consequently they pledged their support for the continuation of the programme
Love to see		
Playing a leading role in future rituals as a human resource available to the community	1	Their support of the programme was intense and fruitful, and it is anticipated that as the programme expands parental focus group on the safety of initiates might be formed. Parents actually visited the schools during the rituals, at intervals, to see their love ones. This is in contrast to the former practice, namely to simply wait and see who returns, and if your loved one does not, then it was accepted that the Gods took him, and it simply had to be accepted.
Sharing their experiences and success with other communities	1	In a report. The district person in charge of circumcision testified on how other communities intend to do likewise, to curb mortality. Parents also stated that other parents from different communities intended to do likewise, to help their loved ones.
Being involved, and forming mutual alliances with, the community and government	2	Their overwhelming involvement and participation , as well as fielding initiates of the correct age, and discouraging the use of illegal circumcision schools was a testimony to this and a sign of good alliance with both.
Summary of the description of changes to date: Parents and guardians acted responsibly and formed an alliance with the team in many ways: they provided IDs and affidavits when required, visited initiation schools, encouraged initiates to seek medical treatment when necessary, became involved in the educational talks, and discouraged the use of illegal circumcision schools by teaming with police and community elders to ban offenders. They supported the team's proposal for a medical examination for initiates and accompanied their children to the hospital. Parents met with the team, and most attended the meetings organised before and after the ritual.		
People and circumstances that contributed to this change: The key people that contributed to the changes seen were the community elders, who acted as an advisory committee and mediated on behalf of the team by communicating with and advising		

parents on responsible parenting. They also conveyed a clear vision of the programme and its intentions to the parents. Recent increases in the numbers of complications and death in the community due to circumcision was a motivational factor. The district hospital provided materials for circumcision, transport, and isolation rooms for treatment complications. Its involvement and support served to convince the parents of the changes (beyond all doubt).
Lessons learnt: Parents and guardians are important boundary partners. They are willing to work with the team, and respect the rules and laws governing the circumcision rituals. They respect and understand the importance of the change, as seen in the achievement of positive outcomes.

Table 8: Reflections on outcomes with regards to community leaders

Expect to see	Score	Description of changes seen in support of the rating
Accept the team and the practices to be introduced	2	Their active participation in activities and setting rules is beneficial for a positive outcome. Eight representative community elders held meetings with the team on several occasions to discuss issues like age limits, pre-circumcision examination, and later report back to their subordinates.
Be partners with the team to effect changes	2	They are the advisory group of the team, and a link between the team and the community: they acted as the community's eyes, set rules, and helped the team to achieve its milestones
Create laws and rules in favour of the project	2	They did this in collaboration with the police and the team to ensure that no illegal circumcision school is being operated in the community. They designated only two schools to be used for the ritual, as it made monitoring easier.
Like to see		
Promote the pre-circumcision examination to initiates	2	They cited inadequate medical examinations as one factors associated with the high number of complications, and requested that the team doctor obtain baseline health data for all initiates. They held meetings with the team and agreed that, as standard criteria, all initiates must have this done and obtain a fitness certificate before acceptance at the initiation schools.
Promote the fielding of initiates of the correct age	2	A certain age standard for initiates was set by the team in conjunction with the community elders. There is however a grey area – boy aged between 16 and 18 are currently accepted, but this is still under debate. Elders reported that community meetings are being held to address this, and finalisation should be reached before the December ritual.
Support the programme by helping to educate the initiates to accept treatment when necessary	1	Some team members who attended meetings reported that the elders urged parents to encourage their children to seek treatment early as there isolation rooms were set aside in the hospital for this purpose
Request the traditional surgeons to use the safe practices proposed by the team	2	The team reported on meetings held with surgeons and attendants, and the community leaders. The elders held meetings with all 6 traditional surgeons, and later the heads surgeons and the traditional healers, and requested them to act and use the safe circumcision method proposed by the team as a sign of

		commitment to saving the community.
Expand partnership with the police to punish offenders running illegal school	2	They held meetings with police. Two police officers were delegated for circumcision related issues as lately assaults have frequently taken place at the initiation schools.
Identify opportunities for collaboration with the DoH and encourage a good working relationship	1	The community leaders thanked the hospital managers. They also requested that more assistance be sought from the DoH, specifically to equip schools to withstand the environmental hardships.
Request assistance from the district health or DoH to help them with resources to expand the programme's success	1	Elders met with the team several times before and after the circumcision ritual and reflected on what they expected from the district health structures. Three of them were delegated to thank the hospital managers and the team for their assistance and efforts.
Love to see		
Serve as a role model to other communities, and encourage them to adopt a similar programme	1	This has not been fully established yet, as currently the focus is more on their own community, but this should become evident if the programme continues to impact positively, especially as the elders played a motivational factor in the team success
Share their experiences of the programme with communities in need. and advocate for safe practices of the ritual	2	The principal investigator was urged by the district coordinator to extend this programme to other communities in the district, besides Umlamli, because elders from other villages are demanding this.
Be involved in policy formation concerning the ritual	0	This has not been seen yet as the programme is still new, and under evaluation
Summary of the description of changes to date: Unlike before, when they saw this issue as highly secretive, elders now engaged deeply with the team, the parents, surgeons and traditional healers in such a way that the vision of the programme was well understood as being for the benefit of the initiates and the community. They created rules that now govern the initiation ritual, like urging initiates to seek medical attention if required (as opposed to the old belief of not being a man when doing so), and holding meetings involving parents and police to assist with fielding initiates at the correct age, which helped reduced complications and eradicate illegal circumcision schools.		

People and circumstances that contributed to this change: The key factor that contributed to this change was the situation that the community was currently facing – mortality was on the increase from the ritual, which was unacceptable to the elders**.**
Lessons learnt: The view on circumcision has changed and now even the elders are imbibing the idea of making the ritual safe, while simultaneously preserving their culture. The fundamental lesson is that, in complex situations like this, elders could be the bridge or link needed to disseminate information, and makes the intentions of both government and the community known, since most communities where this ritual is practiced perceives government involvement as intruding into their cultural heritage.

Table 9: Reflections on outcomes with regards to the police

Expect to see	Score	Description of changes seen in support of the rating
Participate in the project and accept the new practices	2	They accepted the project. They were actively involved in the eradication of illegal schools (together with the community elders) and assisted the initiates with IDs and affidavits when necessary.
Establish a relationship with the project team and community	2	This was evident as their activities were geared towards the success of the team. The 2 designated police attended the 3 meetings scheduled between the team, elders, traditional surgeons and the police.
Be actively involved in punishing offenders	2	The police were involved in verification of the surgeon's certificates and worked especially with the community elders in the eradication of illegal schools. Those practicing illegal schools were apprehended and charged by the police to the court – 4 offenders are now awaiting trial.
Like to see		
Be involved, and cooperate with the team and community to eradicate illegal circumcision school	2	They formed an alliance with the community elders and the team. Meetings were held frequently, and they attended all of them
Be involved with the issuing of affidavits when necessary for identification	1	The initiates without proof of age or ID documents, or those younger than 18 obtained affidavits from the police and these were supported with consent forms from parents and guardians
Verify certificates and ensure that surgeons are updating them	1	Police were involved in the verification of certificates and calls were made and the number assigned to the traditional surgeons verified from the training section at the DoH in Bisho.
Cooperate with the team and the community to punish irresponsible parents involved with age fraud, or other wrongdoing	1	4 offenders have already been caught and handed over to the police and parents involved in such reported to the community elders for appropriate action
Enforce the application of the safe Circumcision Act of 2001, as recommended by the team	2	It was requested that certificates must be tendered before enrolling into the initiation school. Reports show that the police visited the schools randomly and request certificates of fitness from the initiates with permission from the traditional surgeons.

Love to see		
Form policies and make recommendations to government concerning circumcision	0	We are yet to reach this stage, as the programme is still under evaluation – but with police involvement it looks promising
Share local experiences with the wider police community to disseminate the usefulness of the project	1	Reports from community members working in the police force outside Umlamli on how they see the programme indicate that it is well appreciated outside the community. According to a police officer originally from Umlamli but now working in the Sterkspruit police station:"Doc, you and your team have done so well that cases of assault during this June circumcision were not received, which is unusual to us, especially from Umlamli".
Summary of the description of changes to date: Two police officers were assigned to be in charge of any legal issues or assault (mostly when initiates disobey the rules of the ritual, e.g., drinking water or taking salt when the wounds are still raw) emanating from the rituals. They assisted with issuing affidavits to initiates without IDs, and they worked with the community elders and the team in closing illegal circumcision schools and bringing offenders to book. The police were involved with the verifications of the surgeon's certificates and ensuring that initiates went through the medical examinations as requested by the community and team. They obtained proof of signed medical certificates of fitness by visiting the schools during the ritual.		
People and circumstances that contributed to this change: The key people that contributed to this change were the team and the community elders, who requested police assistance during the rituals by writing to the district police officer in charge to request assistance. The view that the quest for money has resulted in the emergence of illegal schools with unqualified surgeons, and subsequently an increase in the mortality figure in the community and an increasing number of cases of assaults during the circumcision period (mostly at the initiation schools) were further circumstances that also required the police to be more fully involved.		
Lessons learnt: The police, as one of the boundary partners, are an essential key partner if the community cooperates and coordinates most of the activities with them, as long as they obey the community and act in fairness when carrying out the activities they were called for. Furthermore, community offenders are more likely to desist from illegal acts if the police are part of the programme package – as is seen not only in the community but also the state.		

Table 10: Reflections on outcomes with regards to the Department of Health and the district health structures

Expect to see	Score	Description of changes seen in support of the rating
Participate in the project by accepting and supporting the team	2	The district gave permission for the team to carry out the project, they fully cooperated, and a designated person was assigned to oversee the activities of circumcision in the district – she assisted with providing information and important data that the team worked with
Establish a structure for cooperation in partnership with the community to ensure that local interest is represented	2	The district gave their support and permission for the project, the hospital gave permission for information to be extracted from past records to assist the team, the hospital assisted the team by providing the venue for meetings, and allocated two isolation rooms for the treatment of complications from circumcision
Contribute both financially and in human resources towards the programme	1	No financial assistance was given but the hospital contributed both human and structural resources to assist the team. It provided transport of team members and the venue for meetings (as stated above). It supplied materials, including surgical blades and gloves, used both during the training and at the actual ritual.
Like to see		
Promote the concept of outcome mapping	1	The acceptance of the project and the effort put into it can be seen by the promotion of the concept of the project. The hospital manager, during the elder's appreciation and thanksgiving meeting, pledged the hospital's continued support.
		Blankets, gloves, surgical blades, gauze and other dressing materials were provided by the hospital in support of the project
Build structures that are encouraging, to withstand environmental hardships	0	The project is still new and under evaluation, but this is one of the proposals the team is trying to put forward, and a written request will be made before the next ritual
Involve the communities in decisions concerning circumcision	2	The team, the community and the hospital board members and managers were involved in the decisions that were put forward. This enabled the hospital to know what to assist with, and this they did, as requested by the team and the community.
Provide necessary training for those involved in the rituals	2	The hospital venue and resources were used for training. Surgeons could improve their skills, and infection control practices, and obtain

		endorsement. This formed part of their contribution.
Delegate and train health personnel (with emphasis on circumcision) of the same culture to visit, and monitor the progress at, the schools – community health workers	0	This has not been put in place but the team hopes this will contribute to reducing complications if put in place. Proposals are being made in this regard.
Identify opportunities for collaboration between the community and other role-players	2	There has been ongoing collaboration with the community and the team, as reported by the team and community members. The hospital managers met with the team and community elders. They pledged their support, and actually assisted during the ritual.
Build structures incorporating a small isolation room for the treatment of circumcision related complications in district hospitals	0	Although this was achieved in the community hospital, it is hoped that government will incorporate this, and build small isolation rooms for the treatment of circumcision complications in the communities where such rituals are practiced
Love to see		
Play a leading role as the main resource funders of such a project	2	The district hospital was the major source of support and resources. The provincial department of health will be involved later as the situation or outcomes of the project are favourable to be the main funders.
Make the practices available to other communities by publishing this article	1	A report from the team on possible assistance from the DoH and district for publications, should the programme make an impact, was welcomed by the district person in charge, as well as the quality assurance team. The district manager pledged to assist with this.
Form policies based on results from the programme	1	The involvement and interest of the district health personnel suggests that such a programme could be used to form policies that will be useful in circumcision cases. The district manager said “lessons learnt from Umlamli will help form policies that will be useful generally, as Umlamli cases might not differ much from what is seen in other Xhosa communities”.
Summary of the description of changes to date: The district health structure, especially the Umlamli Hospital, provided adequate		

assistance in terms of materials, a venue for meetings and a workshop for skills development. It also helped by allocating an isolation room for complication cases emanating from circumcision, which was never done in the past, which now made initiates comfortable to accept treatment promptly. The assignment of a district person in charge of circumcision issues made things easier as complaints and important issues were then channeled to reach higher authorities like the district manager without delay.
People and circumstances that contributed to this change: The key people that contributed to this change were the team and the community elders who formed a safe circumcision group and advisory group, respectively, and met with the hospital management to support their vision on circumcision. Furthermore, the recent increase in complications and mortality from circumcision, which has generated much media attention, has forced the DoH to form collaborations with communities where such surgery is performed.
Lessons learnt: The key lesson learnt is that the DoH as well as the district health structures will need to liaise, engage, cooperate and support these communities, bearing in mind that respect for their culture is important. If acceptance against hostility is clearly to be seen, then a further impact on the reduction of complications is anticipated in future.

Table 11: Reflections on outcomes with regards to emergency medical services

Expect to see	Score	Description of changes seen in support of the rating
Accept and support the team initiative in the project	2	Their support of the project and attendance at meetings was slightly encouraging; they sent 2 representatives to each meeting.
Participate in the training programme – involving triaging of patients, depending on complications	1	They participated in the triaging of patients in the hospital, in a simulated case organised by the district They played a very important role: in the simulated case the following were made available: 2 ambulances, about 8 EMS staff and 15 student nurses.
Contribute their quota towards the success of the programme – human resources	1	They attended all of the meetings and participated in simulated disaster cases, as mentioned previously
Establish a standard in terms of allocation of a special ambulance for the rituals, to help to attend to any needs immediately	0	A promise was made, but did not materialise. There was an alarming shortage of ambulances and personnel. The district has only two ambulances serving the hospitals, and could not meet the team's requirements.
Like to see		
Request opportunities for training on how to triage patients	1	They sent the 8 participants in the triage simulated cases for assessment by the district disaster team from Barkly East
Request a mobile phone to facilitate easy and effective communication	0	This was not feasible due to a lack of budget resources. Hence the situation in terms of communication was the same as before and during the ritual. No ambulance was available, and hospital patient transport served this purpose.
Spread and disseminate the importance of having the vision of the project, and how they can assist in goal achievement	1	Their participation and involvement in the meetings of the team and involvement at the triage scenarios was evident
Equip the ambulances to standard to help survival of their patients to the point of destination	1	A general upgrade of ambulances was carried out – but not specifically for circumcision cases, but rather for other cases like maternity and paediatric cases. Upgrading included the provision of oxygen and incubators, and the training of paramedics.
Encourage and create good relationships and collaboration with other institutions, e.g., the	1	They generally do this for emergency cases to alert the doctor and nursing personnel, so it should be a routine that has to be maintained. In past rituals they occasionally did this with wireless radio phones.

doctors or the hospital involved		
Love to see		
Play a leading role in resource management and support towards long lasting or long term benefits associated with being a participant to change	0	The team's request for a special ambulance and for proper training on the management of complicated cases associated with circumcision was unsuccessful. No special programme was arranged for this by the EMS.
Help to influence national policy formation on resource use and management in the circumcision ritual	0	Evidence of such has not been noted
Share experiences and lessons learnt with other colleagues who will be involved in the ritual, e.g., in facilitating transportation	1	The team reflected on how the boundary partners performed, what was done well, and what needs to be changed, especially concerning the low achievement with the EMS. They also formed part of the meetings and the two representatives that were sent by the EMS will now report back on the team's reflection.
Summary of the description of changes to date: The changes we anticipated were grossly underachieved and there was not much impact seen in terms of the changes and activities we wanted to implement. A quantitative score of 35% was achieved with the progress markers set with EMS. There was no special ambulance designated for circumcision cases (in spite of our requesting one) and no handsets were purchased (as designated to be used by the EMS personnel to call hospitals or designated treatment points). There was however a general upgrade of the ambulances, which we see as a welcome development, and representatives were sent to and attended the meetings organised by the team. Triaging patients and attending to emergency cases, as organised by the district, was good; full participation by 8 of them was noted.		
People and circumstances that contributed to this change: Contributions were made by the DoH, as well as the district disaster team who upgraded the emergency ambulances in use and organised the triage scenario attended by the EMS team.		
Lessons learnt: The main lesson learnt was that the EMS will need to be fully integrated and supported both financially and otherwise by the government if the required outcomes are to be met. The programme will need to arrange alternative local transport, just like we did with the help of the district hospital to transport patients from the initiation ground to the hospital and back to circumcision school, in cases where underachievement is anticipated with the EMS.		

Reflections on the organisational practices of the safe circumcision team

As part of the organisational reflection employed to remain innovative and aligned with the programme's objectives the team used a questionnaire survey during the reflection meeting on the effectiveness of teamwork, as a form of internal audit.[26] The results are shown in Table 12.

Table 12: Results of questionnaire on effective teamwork by the project team

Criteria (Scale of 1: poor to 5: good)	Team score (n = 5)
Team goals – I am very clear about what our team is trying to achieve and we all put our efforts into it	4.8
My role – In almost every situation I am sure about what my responsibilities are and what other team members are supposed to be doing. When a query arises, we discuss where we each think our responsibilities lie.	4.5
Procedures – Everyone gets a chance to speak and to influence the discussion. We listen to everyone's contribution. No one is ignored. Everyone is drawn into the discussion.	4.6
Decisions – When we discuss a problem, I usually understand exactly what the issue is, what we have decided to do about it, and what my responsibilities are. Decisions made by the team are effectively carried out.	4.5
Managing conflict – We try to get the disagreeing parties together and let them talk through their points of view, until each can see some sense in the other's ideas. Then we try to reach an agreement that makes sense to everyone.	4.6
Availability – When you have a question, or need some help from another team member, there is no problem getting hold of anyone. People go out of their way to be available to each other. I have no difficulty talking to anyone on the team.	4.8
Mutual support – I really like my job, and working together in this team. The team encourages you to take responsibility. Other team members appreciate your efforts and help when things are not going well. We really pull together in this team.	4.8

Average score	**4.6**

Results show that the team roles were clear to team members, goals were adhered to, and the procedures or activities of each team member were well understood. The decisions were taken jointly by the team and grey areas cleared up with the help of the advisory council. Team members supported each other, and were also supported by the community and the district health structures, especially the community hospital. The team members were always available for meetings.

Overall, the team functioned well. All 15 members were available and attended the meetings. They arrived on time and meetings began promptly, thanks to the availability of a vehicle to transport team members to the meeting and drop them off at home again after the meeting. Unfortunately the school principal suffered a big loss and had to be replaced by the hospital's chief administrative officer. The venue was large enough to accommodate the team members and allowed for privacy since it is distant from the busy areas within the hospital. The meetings usually lasted longer than the anticipated time of 2–3 hours. This was a result of interpretations that had to be made to 40% of the team members who do not understand English (they did not understand the doctor when he spoke, and vice versa). Furthermore, a prototype of this questionnaire was written in Xhosa, and has to be read to the team members by the research assistant, and then individual scores had to be obtained and analysed by both the principal investigator and the research assistant. This also required more time. The overall communication about team vision was clear and team effectiveness was high. The head of the traditional surgeons stated the following: "These questions were good and helped me to express how I feel about being part of the team; it is great and I hope it continues this way".

DISCUSSION

A total of 92 initiates were enrolled into the June 2010 traditional male circumcision ritual in the Umlamli community in the Eastern Cape, South Africa. The study found that, amongst these initiates, only two had complications, due to haemorrhage and penile sepsis. They were treated appropriately, and no mortality was recorded during this period. This success could be attributed to the

developmental processes and activities employed using the outcome mapping strategies, the greatest of which is seen in the use of a single surgical blade for each of the initiates rather than an assegai that was formerly used by the traditional surgeons, and which was associated with a high number of complications, leading to a high death rate. Furthermore, the traditional surgeons now observed correct infection control practices by wearing gloves and washing their hands between attending to initiates during the ritual, which was one of the strategies proposed by the workshop to reduce complications. Results were similar to those of other studies, for example those carried out by Ogubanjo et al. and Peltzer et al[2,7].Most complications arising from this traditional circumcision are as a result of poor operation technique, ignorance of correct infection control practices, and the usually unhygienic manner in which the surgery is carried out. All the initiates were 16 years and above, and had presented themselves for pre-medical examinations and fitness testing before acceptance at the initiation school. This also led to a positive outcome, as no initiates died at the initiation school as a result of exposure to dusty and cold environmental conditions that they are typically exposed to (young boys are more susceptible to developing complications from such an environment).

This project appears to have made a significant contribution to the reduction in mortality and morbidity from traditional circumcision observed in this community. Changes in behaviours of the targeted boundary partners has led to a reduction in the number of factors that were formerly contributory to high tragic outcomes, including operating illegal circumcision schools, having unqualified traditional surgeons and attendants circumcise the boys, fielding initiates of tender ages without pre-circumcision examination by most parents and guardians. These contributory factors to the high mortality rate were reduced significantly.

This project evoked the greatest changes amongst the traditional surgeons and attendants, parents, initiates, community leaders, and the police. The project was less successful in achieving change in the DoH, and least successful amongst the EMS. The poor success is a result of a lack of resources and heavy debt, which has recently crippled the DoH, following the payment of occupational specific dispensation (OSD).

The key aspects of this project that were responsible for its success were considered to be the following:

- The use of outcome mapping as an overt approach to project design and monitoring

- The participatory nature, which involved community leaders, traditional surgeons and health workers
- Eliciting community support for a better and acceptable age limit and closure of illegal circumcision schools
- The running of only two big approved and accredited circumcision schools, enabling access and monitoring of the events at the schools
- Organisation of training workshops on correct surgical procedures and infection control practices, which led to an improvement in surgical skills and prompt recognition of complications
- Designation of an isolated treatment room for initiates with complications, which had a positive effect on the acceptance of treatment at the district hospital
- The district hospital's assistance with materials vital for circumcision, like surgical blades, gloves, bandages and other materials used for circumcision
- The application of the safe Circumcision Act of 2001, where pre-circumcision examination of initiates was done and certificates of fitness issued to qualify candidates in order to reduce complications, as exposure to a harsh environment is part of the mental toughness an initiate faces during the ritual.

The use of outcome mapping is participatory and empowering and forms part of community oriented primary care, where health care is provided to a defined community on the basis of its assessed health needs, by the planned integration of primary care practice and public health.[27] This involves acting beyond the individual patient and family to bring about changes in the wider factors that affect health. In the Umlamli community the problem of increased mortality after traditional circumcision was identified by the community. The doctor, in partnership with the community members, then formed the safe circumcision team to address the problem at hand. Most studies done on circumcision have described the problem rather than evaluating interventions, therefore this study has limited comparison to other studies done in the past.

During the project some limitations to the outcome of the project were noticed; most visible was finance, as the project was funded by the team doctor with little assistance from the Catholic priest. In future the programme will need to be assisted by

appropriate stakeholders to extrapolate the ideas contained, as publication will help disseminate information promptly. Furthermore, the nature and secrecy of the programme meant that information could not be made public, and the women, who are important in procreation and whose anxieties are high at the time of the ritual for their children, are totally ostracised in circumcision issues. The language barrier limited my access to information and clarity since some of the team members only understood Xhosa, and interpretation has to be conducted (on both sides) when we deliberated on issues.

In the view of the ongoing work of the safe circumcision team and its contribution thus far, it is clear, and important, that changes are needed in the circumcision schools. The following recommendations should be implemented as standards: The provision of materials for circumcision like surgical blades and gloves use by the traditional surgeon must be readily available, solid building required improving the harsh conditions faced by the initiates and certain prerequisites for admission must be met – including age limits and the initiates first passing a fitness examination. The DoH, health practitioners and the community must form a partnership and work synergistically to curb the problems facing the community from traditional circumcision. Positive outcomes and lessons learnt must be replicated to other sub-districts, to disseminate and share information that will be of assistance to them.

CONCLUSION

This study draws attention to the need for and usefulness of outcome mapping in complex situations like the practice of traditional male circumcision which is deeply rooted in the culture of the Xhosa communities. It appears that the project embankment on the three-day training for the traditional surgeons and attendants made a remarkable impact as skills were improved on surgical techniques and correct practices of infection control helped reduced mortality arising from poor technique, and recognition of complications and prompt referral to the hospital was beneficial. The educational talks and pre-circumcision examinations helped promote and evoked better behavioural change within the initiates, as compliance within the age boundary limits, evaluation of baseline health and acceptance of immediate treatment at the district hospital were welcomed outcomes anticipated that the project intends to continue.

The involvement of the community elders, parents and the police (law enforcement agents) promoted cognitive and attitudinal changes within the community members as closure of illegal circumcision schools and enrolment of underage initiates were discouraged and dissidents who perpetuated this act apprehended and charged accordingly. The operation of only two big and centrally located circumcision schools within the community improved timely and appropriate monitoring of initiates and made accessibility easier for the designated team members, parents and the police who are charged with some responsibilities of looking out for their love ones and made sure things were done in line with the community specified rules.

Having mirrored through to the outcomes of the project, it is important that communities and the DoH should work hand in hand if positives outcomes will continued to be achieved in successive rituals, policy makers should be encouraged to implement aspect of the project that are useful, this includes implementation of male circumcision as an additional measure in HIV prevention programmes but with emphasis that circumcision alone cannot be a stand-alone procedure; "it must be integrated with behavioural and reproductive health counseling in order to minimize both complications and risk of HIV infections".

References

1. Okeke LI, Asinobi AA, Ikuerowo SO. Epidemiology of complications of male circumcision in Ibadan, Nigeria. BMC Urology 2006;6:21. doi: 10. 1186/1471-2490-6-21.

2. Mogotlane SM, Ntlangulela JT, Ogubanjo BG. Mortality and morbidity among traditionally circumcised Xhosa boys in the Eastern Cape Province, South Africa. Curationis 2004;27:57-62.

3. Mayatula, V, Mavundla, TR. A review on male circumcision procedures among South African blacks. Curationis 1997;20:16-20.

4. Nnko S, Washija R, Urassa M, Boerma JT. Dynamics of male circumcision practices in northwest Tanzania. Sex Trams Dis 2001;28(4):214-8.

5. Wollbarst AL. Circumcision and penile cancer. Lancet 1932;1:150-3.

6. Myers A, Myers J. Male circumcision: the new hope? S Afr Med J 2007;97(5):338-341.

7. Peltzer K, Nqeketo A, Petros G, Kanta X. Traditional circumcision during manhood initiation rituals in the Eastern Cape, South Africa: a pre-post intervention evaluation. BMC Public Health: 2008,19(8):1-64.

8. Province of the Eastern Cape. Application of health standards in traditional circumcision, Act 6 of 2001 (Eastern Cape); Provincial Gazette No 818 (extraordinary). Bisho/King William's Town: Province of the Eastern Cape; 2001.

9. Ben CJ, Livne PM, Binyamini J, Hardak B, Ben-Meir D, Mor Y. Complications of circumcision in Israel. A one year multicenter survey. Isr Med Assoc J 2005,7:368-70.

10. Meissner O, Buso, DL. Traditional male circumcision in the Eastern Cape – scourge or blessing? S Afr Med J. 2007;97:371-3.

11. Meel BL. Community perception of traditional circumcision in a sub-region of the Transkei, Eastern Cape, South Africa. S A Fam Prac 2005;47:58-9.

12. Vincent L. Boys "will be boys"? traditional male circumcision, HIV and sexual socialization in contemporary South Africa. Cult Health Sex, 2008 Jun;10(5):431-6.

13. Auvert B, Taljaard D, Lagarde E, et al. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. Public Library of Science Medicine 2005;2:e298.

14. Bailey RC, Moses S, Parker CB. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomized controlled trial. Lancet 2007;369:643-56.

15. Gray RH, Kigozi G, Serwadda D. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomized trial. Lancet 2007;369:657-66.

16. Donoval BA, Landay AL, Moses S, et al. HIV-1 target cells in foreskins of African men with varying histories of sexually transmitted infections. Am J Clin Pathol 2006;125(3):386-91.

17. Ndiwane A. Laying down the knife may decrease risk of HIV transmission: cultural practices in Cameroon with implications for public health and policy. J Cult Divers 2008 summer;15(2):76-80.

18. Moses S, Plummer FA, Bradley JE, Ndiya-Achola JO, Nagelkerke NJD, Ronald AR. The association between lack of male circumcision and risk for HIV infection: a review of the epidemiological data. Sex Transm Dis. 1994;21(4)1-10.

19. De Vincenzi ID, Mertens T. Male circumcision: a role in HIV prevention? AIDS 1994;8(2)3-60.

20. Van Howe RS. Circumcision and HIV infection: review of the literature and meta-analysis. Int J STD AIDS 1999;10(1):8-16.

21. Weiss HA, Quigley MA, Hayes R. Male circumcision and risk of HIV infection in sub-Saharan Africa: a systematic review and meta-analysis. AIDS 2000;14(15):2361-70.

22. Bailey RC, Plummer FA, Moses S. Male circumcision and HIV prevention: current knowledge and future research directions. Lancet Infect Dis 2001;1(4):223-30.

23. Siegfried N, Muller M, Volmink J, et al. Male circumcision for prevention of heterosexual acquisition of HIV in men. Cochrane Database Syst Rev 2003;(3):CD003362.

24. Peltzer K, Nqeketo A, Petros G, Kanta X. Evaluation of a safer male circumcision training programme for traditional surgeons and nurses in the Eastern Cape, South Africa. AJTCAM. 2008; 5(4): 346-354

25. Mash R, Ainslie G, Mayers P, Irusen E, Bheekie A. The dissemination and implementation of national asthma guidelines in South Africa: the use of outcome mapping. South African Family Practice Journal 2007; 49(5): 5-8.

26. Mash, B, Mayers, P, Conradie, H, et al. (2008). How to manage organizational change and create practice team: Experiences of a South African Primary Care Health Centre. South African Family Practice Journal, 21, 1-14

27. Mash B (Ed). Handbook of Family Medicine (2nd edition). Cape Town: Oxford University Press, 2006.